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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/603,477

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Jeffrey B. Stearns

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EXAMINER

LAMBELET, LAWRENCE EMILE

ART UNIT

PAPER NUMBER

1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/603,477

Applicant(s)

STEARNS ET AL.

Examiner

Lawrence Lambelet

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18, drawn to method of producing a 3-D composite support structure, classified in class 264, subclass 222.
- II. Claims 19-20, drawn to die for a composite structure, classified in class 425, subclass 177.
- III. Claims 21-25, drawn to method of producing a mold, classified in class 264, subclass 219.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process, wherein the die is not coupled to a model.

Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process

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(MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, wherein the die is machined.

Inventions I and III are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product, and the species are patentably distinct (MPEP § 806.05(j)). In the instant case, the intermediate product is deemed to be useful to form an engine nacelle for an aircraft and the inventions are deemed patentably distinct because there is nothing on this record to show them to be obvious variants.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with Christopher Eusebi on 1/3/2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: The drawings are replete with omissions too numerous to catalog. "Composite structure 56" and "hole 68" in paragraph [0038] are two examples of missing reference numbers. Missing reference numbers on the indicated figure, such as "thigh portion 104" and "calf portion 106" for Fig. 18 in paragraph [0051], is an example of another kind of omission. Applicant should review the entire specification for correspondence of drawing reference numbers and text citations.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Again, duplications of reference numbers and mis-statements are too numerous for detailed treatment here. By way of example, "polyethylene sheet 100" and "polyethylene sheet 61" can be found in conflict in paragraph [0051]. Again "glass scrim 118" and "carbon fiber kit 118" appear as duplications in paragraph [0055]. Figure 8, with respect to the flattened hinge, is mis-quoted in paragraph [0044]. The features are found in Fig. 7 instead. A similar juxtaposition of Figures 10 and 9 exists in paragraph [0045].

Appropriate correction, involving a detailed and comprehensive review of the specification for errors, is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9, 11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper (U.S. Patent 4672955) in view of Papay et al (U.S. Patent 6423019), and further in view of Nowak et al (U.S. Patent 5433418).

Cooper discloses a method of producing a knee orthosis reading on claims 1 and 13. Cooper teaches providing a 3-D replica of a leg (model) and applying a pattern thereto. See lines 1-24 in column 6. Cooper further teaches pressing a pre-preg

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material onto the leg model and curing the material in situ with heat. See lines 60-68 in column 2 and 50-55 in column 6.

Cooper teaches adding a layer of sock over the model, as required by claims 2, 11 and 16. See lines 16-18 in column 5. In this case the model is the leg itself.

Cooper teaches providing a cast model of a leg, as required by claim 3. See lines 3-7 in column 6.

Cooper teaches coupling a hinge to the pre-preg, as required by claims 6 and 14, and doing so prior to curing the pre-preg, as required by claims 7 and 15. See lines 20-24 in column 5.

Cooper teaches that the pre-preg is reinforced and curable (implying a thermoset material), as required by claim 8. See lines 20-25 and 52-55 in column 6.

Cooper teaches applying pre-preg layers in an alternating layup, as required by claim 9. See lines 16-31 in column 3.

Cooper does not teach vacuum-forming a thermoplastic layer to imprint shape and thereafter hardening to form a shell, as required by claims 1 and 13.

Papay et al, hereinafter "Papay", teaches using vacuum to conform a heated polymer sheet to a model of a head. See lines 20-37 in column 6.

Cooper and Papay are combinable because they are concerned with a similar technical field, namely, orthosis devices. One of ordinary skill in the art at the time of the invention would have found it obvious to include the conforming means taught by Papay in the pre-preg layup method of Cooper. The motivation to do so would have been to produce a rigid conformance to a feature of a model without the complication of

a curable structure involving a two-step curing process necessitated by the requirement for maintaining partial frangibility. See lines 60-65 in column 2 of Cooper.

Cooper/Papay does not teach using a splash mold to shape the pre-preg material, as further required by claims 1 and 13.

Nowak et al, hereinafter "Nowak", teaches forming a splash mold for the purpose of molding composite material. See lines 65-68 in column 7 and 1-20 in column 8.

Cooper/Papay does not teach providing landmarks to the model, as required by claim 4.

Nowak teaches providing a flange lock-in area to a model. See lines 32-43 in column in 4.

Cooper/Papay and Nowak are combinable because they are concerned with a similar technical field, namely, molding composite materials. One of ordinary skill in the art at the time of the invention would have found it obvious to include the splash mold taught by Nowak in the layup method of Cooper/Papay. The motivation to do so would have been to provide a fixturing means for such features the knee joint axis without the complication of a jig requiring adjustment. See lines 60-68 in column 4 and 1-17 in column 5 of Cooper.

Claims 10 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper in view of Papay and Nowak as applied to claims 1-4, 6-9, 11 and 13-16 above, and further in view of Townsend et al (U.S. Patent 5,658,244).

Cooper/Papay/Nowak teaches the method of claims 1-4, 6-9, 11 and 13-16, as discussed above.

Papay teaches using vacuum to conform a heated polymer sheet to a model profile. See lines 20-37 in column 6

Cooper/Papay/Nowak does not teach placing a thermoplastic/polymer spacer layer over the model, as required by claims 10 and 17, or vacuum-forming a heated thermoplastic sheet for the spacer, as required by claim 18.

Townsend et al, hereinafter "Townsend" teaches placing a pre-formed spacer on a leg.(model). See lines 63-68 in column 2. It would have been obvious to one of ordinary skill, in view of the Papay teaching, to use a vacuum-formed heated sheet for the spacer.

Cooper/Papay/Nowak and Townsend are combinable because they are concerned with a similar technical field, namely, knee orthosis. One of ordinary skill in the art at the time of the invention would have found it obvious to include the spacer as taught by Townsend in the method of Cooper/Papay/Nowak. The motivation to do so would have been to liberalize fit and avoid discomfort to the wearer. See lines 45-50 in column 2 of Townsend.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper in view of Papay and Nowak as applied to claims 1-4, 6-9, 11 and 13-16 above, and further in view of Moermann et al (U.S. Patent 4,575,805).

Cooper/Papay/Nowak teaches the method of claims 1-4, 6-9, 11 and 13-16, as discussed above.

Cooper/Papay/Nowak does not teach utilizing a bio-scan system to create a model, as required by claim 5.

Moermann et al, hereinafter "Moermann", teaches the use of a noncontact topographic mapping method to capture the 3-D shape of a body organ. See lines 34-53 in column 2.

Cooper/Papay/Nowak and Moermann are combinable because they are concerned with a similar technical field, namely, replication of human body part shapes. One of ordinary skill in the art at the time of the invention would have found it obvious to include topo mapping taught by Moermann in the modeling method of Cooper/Papay/Nowak. The motivation to do so would have been to avoid the time-consuming mold casting process involving negative and positive replications. See lines 43-48 in column 2 of Moermann.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper in view of Papay and Nowak as applied to claims 1-4, 6-9, 11 and 13-16 above, and further in view of Seemann (U.S. Patent 5,601,852).

Cooper/Papay/Nowak teaches the method of claims 1-4, 6-9, 11 and 13-16, as discussed above.

Cooper/Papay/Nowak does not teach using a vacuum bag as a means of applying pressure, as required by claim 12.

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Seemann teaches a vacuum bag technique used to form fiber-reinforced plastic structures. See lines 39-53 in column 1.

Cooper/Papay/Nowak and Seemann are combinable because they are concerned with a similar technical field, namely, pre-preg molding. One of ordinary skill in the art at the time of the invention would have found it obvious to include the compression method taught by Moermann in the layup method of Cooper/Papay/Nowak. The motivation to do so would have been to completely wet the fiber with resin and remove any air. See lines 49-53 in column 1 of Seemann.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents are cited to further show the state of the art with regard to orthopaedic support:

U.S. Patent 5334135 to Grim et al

U.S. Patent 5042464 to Skwor et al

U.S. Patent 5009223 to DeFonce

U.S. Patent 7048704 to Sieller et al

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Lambelet whose telephone number is 571-272-1713. The examiner can normally be reached on 8 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LEL
1/4/2007


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1/5/07